

REMARKS

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In the Office Action, the Examiner rejected claims 1, 4-9, 12-19, 21-30 under 112, claims 16-19 under 35 USC 102, and claims 1, 4-9, 12-16, 21-23 and 25-30 under 35 USC 103. These rejections are fully traversed below.

Claims 7, 16, 23, 24 and 27 have been amended. Claim 24 in particular was amended to include the limitations from base claim 7 (no new matter was added). Claims 31-41 have been added. Thus, claims 1, 4-9, 12-19, and 21-41 are pending in the application. Reconsideration of the application is respectfully requested based on the following remarks.

It should be noted that the outstanding office action is incomplete. The Examiner failed to provide a U.S. Patent Number for the cited reference "Brunker." It appears that the reference "Brunker" was never cited in the Examiner's 892 forms or the Applicant's 1449 forms. The undersigned tried to resolve the issue by contacting the Examiner, but the call was not returned by the date of this filing. Furthermore, a quick search of the name "Brunker" on the USPTO search page brought back about 50 references making it nearly impossible to identify the correct reference. As a result of not having the reference in hand, the Applicant has not responded to any of the rejections using "Brunker." If the Examiner provides the U.S. Patent Number and decides to maintain his rejections in subsequent action, it is believed that a new non final office action should be issued as this will be a first rejection on the merits.

Claim Rejections – 35 USC 112

Claims 1, 4-9, 12-19, 21-30 have been rejected under 35 U.S.C 112, first paragraph, as failing to comply with the enablement requirement.

The Applicant respectfully disagrees with the rejection and maintains the arguments presented in the previous responses. For clarity of this response, they are not reproduced herein.

Claim Rejections – 35 USC 102

Claims 16-19 have been rejected under 35 USC 102(b) as being anticipated by *Shi* (2001/0053630) and by *Brunker* (???).

As mentioned above, the *Brunker* reference was not provided in the outstanding office action and therefore this section only responds to the rejection associated with *Shi*.

In contrast to *Shi*, claim 16 (and its dependents) specifically requires, "...the outer shells forming a first power line of the DC connector arrangement when mated, the inner electrodes forming a second power line of the DC connector arrangement when mated ..." While *Shi* may disclose latches 113, contacts tabs 115 and holes 12', *Shi* does not teach or suggest a DC connector arrangement let alone one with an outer shell that is a first power line and an inner electrode that is a second power line. *Shi* is a USB connector, and USB connectors are not set up this way. Accordingly, the rejection is unsupported by the art and should be withdrawn.

Although the rejections to the dependent claims should be withdrawn for at least the reasons mentioned above, it should be noted that they offer additional language that is unsupported by the art.

Claim Rejections – 35 USC 103

Claims 1, 4-10, 21, 22 and 23 have been rejected under 35 U.S.C. 103(a) as being unpatentable over *Akama* (6,439,928).

Claim 1

In contrast to *Akama*, claim 1 (and its dependents) specifically requires, "...the inner electrode having redundant power contacts ..." While *Akama* may disclose ground contact elements 312 and 322, *Akama* does not teach or suggest power contacts. In *Akama*, the ground contact elements are used as a shield to reduce a cross talk between two parallel pairs of signal contact elements (see for example Col. 1, lines 56-58). The ground contacts do not carry electrical current for powering electronic devices as in the present invention. Accordingly, the rejection is unsupported by the art and should be withdrawn.

Claim 7

In contrast to *Akama*, claim 7 (and its dependents) specifically requires, "...the first and second lateral redundant contacts being configured to transmit DC power ..." As mentioned above, *Akama* does not teach or suggest power contacts. Ground contacts are not power contacts. Accordingly, the rejection is unsupported by the art and should be withdrawn.

Also in contrast to *Akama*, claim 7 (and its dependents) specifically requires, "...a DC receptacle comprising an outer conductor, a DC plug comprising an outer conductor that electrically mates with the outer conductor of the DC receptacle ..." While *Akama* may disclose a jack and plug connector, *Akama* does not teach or suggest outer conductors. In *Akama*, the jack connector and plug connector include insulating body 313 and insulating body 323, respectively. This is opposite the teaching of claim 7. Accordingly, the rejection is unsupported by the art and should be withdrawn.

Also in contrast to *Akama*, claim 7 (and its dependents) specifically requires, "...A DC plug for insertion into the DC receptacle at only 0 and 180 degrees..." *Akama* is completely silent to 0 and 180 orientations. Furthermore, the connector consists of multiple signal contact elements that are not believed to be interchangeable and thus the connector would not work in multiple orientations. Accordingly, the rejection is unsupported by the art and should be withdrawn.

Claim 21

In contrast to *Akama*, claim 21 (and its dependents) specifically requires, "...the coupling between the insertion element and the receiving element allowing DC transmissions to occur between the DC plug and the DC receptacle.... at least a portion of the corresponding contacts being power contacts for allowing DC power transmission to occur between the DC receptacle and DC plug" Again, *Akama* only teaches ground contact elements. Accordingly, the rejection is unsupported by the art and should be withdrawn.

Also in contrast to *Akama*, claim 21 (and its dependents) specifically requires, "...the insertion and receiving elements having a small axial contact distance between about 3 and about 4 mm in order to minimize the insertion extraction force found between the insertion and receiving elements." *Akama* is completely silent to reduced axial contact distances. Accordingly, the rejection is unsupported by the art and should be withdrawn.

Also in contrast to *Akama*, claim 21 (and its dependents) specifically requires, "...the insertion element being configured for only 0/180 degree insertion into the receiving element while providing the same functionality from both positions...." *Akama* is completely silent to multiple positions let alone providing the same functionality from both positions. Accordingly, the rejection is unsupported by the art and should be withdrawn.

Although the rejections to the dependent claims should be withdrawn for at least the reasons mentioned above, it should be noted that they offer additional language that is unsupported by the art.

Claim 26 has been rejected under 35 U.S.C. 103(a) as being unpatentable over *Shi* in view of *Brunker*.

As mentioned above, the *Brunker* reference was not provided in the outstanding office action and therefore this section only responds to the rejection associated with *Shi*.

In contrast to *Shi*, claim 26 (and its dependents) specifically requires, "...a pair of holding flexures in an opposed relationship on the sides of the DC receptacle and a pair of recesses in an opposed relationship on the sides of the DC plug... a first pair of contact flexures on the top of the DC receptacle and a second pair of contact flexures on the bottom of the DC receptacle, the first and second pairs of contact flexures being in opposed relationship..." While *Shi* may disclose latches 113 and holes 12' as well as contact tabs 115, *Shi* does not teach or suggest the arrangement described in the claim. In particular, *Shi* only teaches two small contact tabs and no elements positioned on the sides. Accordingly, the rejection is unsupported by the art and should be withdrawn.

Claims 7, 8, 9, 12, 13 and 30 have been rejected under 35 U.S.C. 103(a) as being unpatentable over *Inaoka* (5,380,225) in view of *Akama*.

Inaoka does not overcome the deficiencies of *Akama*.

Like *Akama*, *Inaoka* does not teach or suggest, "...the first and second lateral redundant contacts being configured to transmit DC power ..." as required by claim 7. *Inaoka* is

completely silent to transmitting DC power. Furthermore, because *Inaoka* teaches preventing cross talk between electrical contact elements 3a the contacts can be presumed to be signal contacts. Signal contacts and power contacts are not the same thing. Accordingly, the rejection is unsupported by the art and should be withdrawn.

Like *Akama*, *Inaoka* does not teach or suggest, "...a DC receptacle comprising an outer conductor, a DC plug comprising an outer conductor that electrically mates with the outer conductor of the DC receptacle ..." as required by claim 7. While *Inaoka* may disclose a jack and plug connector, *Inaoka* does not teach or suggest outer conductors. In *Inaoka*, the jack connector and plug connectors include a housing 2 and 2a, respectively, formed from an insulating material (see Col. 2 lines 31 and 40-41). This is opposite the teaching of claim 7. Accordingly, the rejection is unsupported by the art and should be withdrawn.

Furthermore, *Inaoka* does not teach or suggest, "...A DC plug for insertion into the DC receptacle at only 0 and 180 degrees..." as required by claim 7. *Inaoka* is completely silent to 0 and 180 orientations. For one, he does not mentioned such a feature. For another, he does not show a full view of the connector only a broken view and therefore he does not show such a feature. As such, the Examiner cannot assert such a feature is taught. Furthermore, the connector consists of multiple signal contact elements that are not believed to be interchangeable and thus the connector would not work in multiple orientations. Accordingly, the rejection is unsupported by the art and should be withdrawn.

Although the rejections to the dependent claims should be withdrawn for at least the reasons mentioned above, it should be noted that they offer additional language that is unsupported by the art.

Claims 1, 4, 5, 7, 8, 9, 14, 15, 16, 21, 25, 26, 27, 28, 29 and 30 have been rejected under 35 U.S.C. 103(a) as being unpatentable over *Davis* (5,295,843) in view of *Brunker and Shi*.

As mentioned above, the *Brunker* reference was not provided in the outstanding office action and therefore this section only responds to the rejection associated with *Davis* and *Shi*.

Claim 1

In contrast to *Davis* and *Shi*, claim 1 (and its dependents) specifically requires, "...the outer shell and inner electrode of the DC connector having an axial contact distance with the second outer shell and second inner electrode of the second DC connector of less than 5 mm when fully mated so as to minimize the mating force between the DC connectors...." Both references are completely silent to reduced axial contact distances. Furthermore, both *Davis* and *Shi* appear to teach lengthening the connector which is opposite of shortening. As shown in Fig. 1 of *Davis*, the contacts 4, 5 and 9 are positioned rearward of the front mating ends 12 of both connectors 1 making the axial contact distance of the connectors 1 longer. As shown in Fig. 1 of *Shi*, the terminals 14 are positioned rearward of the front mating end of the insulative housing 10 thereby making the axial contact distance of the connector longer. Accordingly, the rejection is unsupported by the art and should be withdrawn.

Claim 7

In contrast to both references, claim 7 (and its dependents) specifically requires, "...the juxtaposed contacts including a single center signal contact..." No such feature is taught in either reference. Accordingly, the rejection is unsupported by the art and should be withdrawn.

Also in contrast to both references, claim 7 (and its dependents) specifically requires, "...wherein the center signal contact of the DC plug mates with the center signal contact of the DC receptacle in both the 0 and 180 degree orientations in order to establish the only signal line of the DC connector arrangement..." No such feature is taught in either reference. Accordingly, the rejection is unsupported by the art and should be withdrawn.

Also in contrast to both references, claim 7 (and its dependents) requires mating lateral redundant power contacts in both the 0 and 180 degree orientations in order to establish the first power line of the DC connector arrangement and mating outer shells in both the 0 and 180 degree orientations in order to establish the second power line of the DC connector arrangement. No such feature is taught in either reference. Accordingly, the rejection is unsupported by the art and should be withdrawn.

Claim 16

Davis does not overcome the deficiencies of *Shi* as mentioned above. Neither reference teaches or suggests "...the outer shells forming a first power line of the DC connector arrangement when mated, the inner electrodes forming a second power line of the DC connector arrangement when mated ..." as required by claim 16. In *Davis*, the connector includes an insulative housing and thus it is not a power line. Accordingly, the rejection is unsupported by the art and should be withdrawn.

Claim 21

In contrast to *Davis* and *Shi*, claim 21 (and its dependents) specifically requires, "...the insertion element being configured for only 0/180 degree insertion into the receiving element while providing the same functionality from both positions..." *Shi* only discloses a USB connector with single polarity (e.g., only can be connected one way) and *Davis* is completely silent to multiple insertion positions and providing the same functionality from multiple positions. Although it appears to the Examiner that the connector of *Davis* may be engaged at 0 and 180, it should be emphasized that the functionality of the connector is not 0/180 symmetric and therefore the connector would fail if engaged in a second orientation (e.g., it doesn't provide the same functionality from two positions).

In *Davis*, the connector includes three pairs of contacts 4/5, each of which are connected to a different pair of twisted pair wires. As is well known, each twisted pair typically has a different functionality associated therewith. For example, one pair may be for receiving signals, one pair for transmitting signals, and an one pair may be reserved or unused. If the connector was rotated 180 degrees from its normal operating position, the functionality of each of the contacts would be mixed up. For example, the left side contact of one connector would not engage the corresponding left side contact of the other connector but rather the right side contact of the other connector. As a result, the connection would fail or not function properly. As should be appreciated, this clearly teaches against one of the main embodiments of the present invention, which is to allow multiple mating orientations, and more particularly 0/180 degree orientations while providing the same functionality at both positions. The same arguments can be made for the contacts of *Shi*. Accordingly, the rejection is unsupported by the art and should be withdrawn.

Also in contrast to *Davis* and *Shi*, claim 21 (and its dependents) specifically requires, "...the insertion and receiving elements having a small axial contact distance between about 3 and about 4 mm in order to minimize the insertion extraction force found between the insertion and receiving elements." Both references are completely silent to reduced axial contact distances. Accordingly, the rejection is unsupported by the art and should be withdrawn.

Although the rejections to the dependent claims should be withdrawn for at least the reasons mentioned above, it should be noted that they offer additional language that is unsupported by the art.

SUMMARY

Applicants believe that all pending claims are allowable and respectfully request a Notice of Allowance for this application from the Examiner. Should the Examiner believe that a telephone conference would expedite the prosecution of this application, the undersigned can be reached at the telephone number set out below.

Respectfully submitted,

BEYER WEAVER & THOMAS, LLP



Quin C. Hoellwarth
Reg. No. 45,738

P.O. Box 70250
Oakland, CA 94612-0250
(650) 961-8300

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